

Application No. 10/824,804
Attorney Docket No. 20714-0033

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D) AMENDMENTS TO THE DRAWINGS

None.

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E) REMARKS

This is a Response to the Office Action dated January 19, 2005.

Upon entry of this Amendment, claims 1-34 will be pending in the Application.

In the outstanding Office Action, the Examiner rejected claims 9, 10, 22, 23, 33 and 34 under 35 U.S.C. § 112 first paragraph, as failing to comply with the written description requirement; rejected claims 4, 5, 8-10, 14, 15, 20-23, 27, 28 and 31-34 under 35 U.S.C. § 112 second paragraph, as being indefinite; rejected claims 1, 3, 6-11, 13, 16-21, 24, 26 and 29-32 under 35 U.S.C. § 102(b) as being anticipated by Gilkeson et al. (U.S. Patent No. 4,262,736) and rejected claims 2, 4, 5, 12, 14, 15, 25, 27 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Gilkeson et al. (U.S. Patent No. 4,262,736) as applied to claims 1, 11 and 24, and further in view of Toth et al. (U.S. Patent No. 6,729,390).

Rejection under 35 U.S.C. § 102

The Examiner rejected claims 1, 3, 6-11, 13, 16-21, 24, 26 and 29-32 under 35 U.S.C. § 102(b) as being anticipated by Gilkeson et al. (U.S. Patent No. 4,262,736), hereinafter referred to as "Gilkeson."

Specifically, the Examiner stated that

Gilkeson et al. discloses:

1. A method of providing heat for an interior space, the method comprising the steps of: providing a HVAC system having a compressor, a condenser and an evaporator connected in a closed refrigerant loop (e.g., col. 3 lines 31-35); providing an auxiliary heater controllable independently of the HVAC system (e.g., col. 3 lines 49-56); operating the HVAC system to provide heat in response to a demand for heating in the interior space (e.g., col. 3 lines 49-56); comparing an ambient outside temperature with a predetermined balance point temperature associated with the HVAC system (col. 3 line 64 - col. 4 line 4); and enabling the auxiliary heater in response to the ambient outside temperature being greater than the predetermined balance temperature (e.g., col. 2 lines 63-68, col. 4 lines 25-44 and the satisfaction of at least one predetermined criteria related to the HVAC system (e.g., col. 1 lines 44-55).

3. The method of claim 1 wherein the at least one predetermined criteria includes an indoor temperature of the interior space being less than a predetermined indoor temperature (e.g., col. 1 lines 44-55).

6. The method of claim 1 wherein the ambient outside temperature is less than a value that can damage the interior space (e.g., col. 3 line 64 col. 4 line 4).

7. The method of claim 6 wherein the ambient outside temperature is less than about 32°F (e.g., col. 3 line 4, col. 4 line 4).

8. The method of claim 1 further including an additional step, of sensing the operational status of the HVAC system, wherein upon sensing the operational status of the HVAC system functioning improperly, the auxiliary heater is enabled without regard to the HVAC system being enabled for the predetermined time or the interior space being less than the predetermined

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indoor temperature (e.g., col. 1 lines 56 - 68, col. 4 line 57 col. 5 line 3).

9. The method of claim 1 wherein the step of enabling the auxiliary heater includes the step of enabling the auxiliary heater in response to the ambient outside temperature being greater than the predetermined balance point temperature and less than a second predetermined temperature, and at least one of the HVAC system being operated for the predetermined time and the indoor temperature of the interior space being less than the predetermined indoor temperature (e.g., col. 2 lines 63-68, col. 4 lines 25-44).

10. The method of claim 9 wherein the second predetermined temperature is greater than a value that can damage the interior space (it is inherent that the ambient outside temperature is less than "some" temperature value that won't cause damage to the interior space; in fact, it is less than infinitely many of these theoretical values).

32. The HVAC system of claim 31 wherein the control panel includes a diagnostic module to determine if the HVAC system is functioning improperly (e.g., col. 2 lines 21-31).

Applicants respectfully traverse the rejection of claims 1, 3, 6-11, 13, 16-21, 24, 26 and 29-32 under 35 U.S.C. § 102(b).

Gilkeson, as understood, is directed to a fault monitoring circuit for a heat pump. The monitoring circuit includes a warning light mounted adjacent the thermostat that is activated when a first stage resistance heater operates while the outdoor temperature is above the balance point. Gilkeson does not control or enable the operation of any heaters.

In contrast, claim 1 recites a method of providing heat for an interior space, the method comprising the steps of: providing a HVAC system having a compressor, a condenser and an evaporator connected in a closed refrigerant loop; providing an auxiliary heater controllable independently of the HVAC system; operating the HVAC system to provide heat in response to a demand for heating in the interior space; comparing an ambient outside temperature with a predetermined balance point temperature associated with the HVAC system; and enabling the auxiliary heater in response to the ambient outside temperature being greater than the predetermined balance temperature and the satisfaction of at least one predetermined criteria related to the HVAC system.

(Emphasis added).

In contrast, claim 11 recites a control system for selectively providing heat to an interior space comprising: a control panel configured to control a HVAC system having a compressor, a condenser and an evaporator connected in a closed refrigerant loop, and an auxiliary heater controllable independently of the HVAC system, the control panel comprising: a first sensor to measure an ambient outside temperature; a control device, the control device receiving a demand

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for heating the interior space from the HVAC system based on the interior space being less than a first predetermined indoor temperature; and a storage device storing a predetermined balance point temperature associated with the HVAC system; and wherein the control device being configured to engage the auxiliary heater in response to the ambient outside temperature being greater than the predetermined balance point temperature and the satisfaction of at least one predetermined criteria related to the HVAC system.

(Emphasis added).

In contrast, claim 24 recites a HVAC system for an interior space, the HVAC system comprising: a compressor, a condenser and an evaporator connected in a closed refrigerant loop; an auxiliary heater controllable independently of the refrigerant loop; a control panel configured to control the HVAC system, the control panel comprising: a first sensor to measure an ambient outside temperature; a second sensor to measure an indoor temperature of the interior space; a control device; and a storage device storing a predetermined balance point temperature associated with the HVAC system; and wherein the control device being configured to engage the auxiliary heater in response to the ambient outside temperature being greater than the predetermined balance point temperature and the satisfaction of at least one predetermined criteria related to the HVAC system.

(Emphasis added).

Although the Examiner did not discuss either of independent claims 11 or 24, it is believed the Examiner intended to apply similar arguments as applied to claim 1.

To begin, at least one feature recited by Applicants in independent claims 1, 11 and 24 is not taught or suggested by Gilkeson. First, Gilkeson does not teach or suggest enabling an auxiliary heater in response to the ambient outside temperature being greater than the predetermined balance temperature and the satisfaction of at least one predetermined criteria related to the HVAC system as recited in independent claims 1, 11 and 24. The Examiner cited the following passages (col. 2, lines 63-68, col. 4, lines 25-44) above in support of his position.

A warning light may be activated when the first stage heater relay calls for heat prematurely, i.e., when outdoor temperature is above the balance point. This warning light may be locked on once activated so that it need be monitored only

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periodically to determine a degradation or loss of efficiency of the heat pump system.

In monitoring and alarming the malfunction operation of the degraded heat pump, the circuitry described above in connection with FIG. 1 operates according to the algorithm shown in FIG. 2. Within the heat pump system the operation is constantly being monitored, FIG. 2, to detect whether the system is in the heating mode but not the defrosting mode, whether the outdoor temperature is above the system balance point (balance point being that outdoor temperature below which the properly efficient heat pump can no longer supply the heat loss to the building to which it is connected), and whether the first stage electrical resistance heater is operating. If the unit is not defrosting and the outdoor temperature is above the balance point and the first stage heater is on, the circuitry will activate a manually resettable alarm, including energizing a light, to indicate that the unit is operating at less than desired efficiency, i.e., there is a degradable malfunction, and the first stage heater is operating when it should not be, e.g. a fault has been detected.

While these passages in Gilkeson disclose enabling, it is only the enabling of the malfunction detection warning light, not the enabling of auxiliary heaters. As stated above, Gilkeson does not enable any heaters. Gilkeson only provides a warning system to notify a user that the first stage heater has been operating prematurely, i.e., when outdoor temperature is above the balance point temperature. The second cited passage from Gilkeson, above, discloses some of the possible operating circumstances which can trigger the alarm of the warning light. However, irrespective of the warning light being activated, the operation of the auxiliary heaters is not affected. To better illustrate this, Gilkeson provides the criteria for energizing a first stage resistance heater, also as cited by the Examiner to support his position that "and the satisfaction of at least one predetermined criteria related to the HVAC system" in claims 1, 11 and 24:

Several stages of resistance heat are typically provided in heat pump systems, which stages are energized sequentially to prevent large surges of load current on the electrical system and to avoid using more such heat than absolutely necessary. The first stage of such resistance heating is typically energized from an indoor thermostat, when the indoor temperature falls about 2 degrees below the thermostat set point, indicating that the heat pump is unable to supply sufficient heat to maintain the desired indoor temperature. Subsequent stages of resistance heating are controlled by varying methods, outdoor thermostats and time delays being among them.

For a heat pump that is operating as designed, the resistance heaters should not be energized as long as the outdoor temperature is above the balance

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point. It is possible, however, for the heat pump to lose part of its heating capacity through a malfunction such as a minor refrigerant leak, so that it is not operating at peak efficiency and cannot supply sufficient heat at the balance point or possibly some degrees above it. If this occurs, the resistance heaters will be energized by the indoor thermostat. The building occupant more than likely will not be aware that this is happening, as a comfortable indoor temperature is being maintained. He will become aware, later, when he receives his electric bill, such bill normally covering a month or more of such operation, because the resistance heat will have consumed much more electricity.

See col. 1, lines 44-55 (cited by the Examiner) and col. 1, line 56 through col. 2, line 3.

In other words, typically, first stage resistance heat automatically is enabled or energized "when the indoor temperature falls about 2 degrees below the thermostat set point." Enablement of the first stage resistance heater has nothing to do with whether the outside temperature is less than or greater than the balance point temperature. The Gilkeson malfunction detection system merely actuates a light to alert the homeowner that the first stage heater has been enabled under unexpected circumstances, i.e., when the outside temperature is greater than the balance point temperature. As clearly set out above, the less efficient resistance heaters of the heat pump for use with Gilkeson are automatically activated by the indoor thermostat and not by the balance point temperature and other criteria as recited by independent claims 1, 11 and 24. Gilkeson merely discloses a way to alert the homeowner that the resistance heater has operated at times when it was not expected to operate, in order for the homeowner to investigate the cause.

Therefore, for the reasons given above, independent claims 1, 11 and 24 are believed to be distinguishable from Gilkeson and therefore are not anticipated nor rendered obvious by Gilkeson.

Since Gilkeson clearly does not operate in a manner remotely similar to claims 1, 11 and 24 of the present invention, Applicant believes the remaining dependent claims are distinguishable. That is, dependent claims 3, 6-10, 13, 16-21, 26 and 29-32 are believed to be allowable as depending from what are believed to be allowable independent claims 1, 11 and 24 for the reasons given above. In addition, claims 3, 6-10, 13, 16-21, 26 and 29-32 recite further limitations that distinguish over the applied art. In conclusion, it is respectfully submitted that

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claims 3, 6-10, 13, 16-21, 26 and 29-32 are not anticipated nor rendered obvious by Gilkeson and are therefore allowable.

Rejection under 35 U.S.C. § 103

The Examiner rejected claims 2, 4, 5, 12, 14, 15, 25, 27 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Gilkeson as applied to claims 1, 11 and 24 above, and further in view of Toth et al (U.S. Patent No. 6,729,390), hereinafter referred to as "Toth."

Specifically, the Examiner stated that

Gilkeson et al. does not disclose that the auxiliary heater is additionally enabled in response to the HVAC system (compressor) being operated for a predetermined time. However, Toth et al. discloses a control system for a heat pump with an auxiliary heat source in which the auxiliary heater is enabled in response to the HVAC heat pump (compressor) being operated for a predetermined time (e.g., col. 2 line 62 col. 3 line 10). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gilkeson et al. with Toth et al. since Toth et al. teaches that such a methodology results in operation that is generally more comfortable and efficient, automatically adapting to changing outside weather conditions and inside set points, which systems relying solely on sensing outside temperature cannot do (col. 2 lines 30-35).

Applicant respectfully traverses the rejection of claims 2, 4, 5, 12, 14, 15, 25, 27 and 28 under 35 U.S.C. § 103(a).

The discussion of Gilkeson above is equally applicable here and is incorporated herein.

Toth, as understood, is directed to a control system for a heating system that includes a first stage heat pump and a second stage auxiliary heater. The control shuts off the first stage heat pump during cold outside temperatures without the need to directly sense the outside temperature. See Abstract. The method includes selectively turning on the first stage heat pump or the second stage auxiliary heater based upon a measure of the amount of time at least one of the stages was on versus the time neither of the stages was on. The Toth control system can be implemented with a counter that increases when neither the heat pump nor the auxiliary heater is on, the counter decreasing when either the heat pump or the auxiliary heater is on.

The Examiner has combined Gilkeson in view of Toth. There is no motivation to combine these references as the constructions are incompatible. First, Gilkeson is directed to a

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malfunction detection system that uses outside temperature sensors as a basis for enabling a warning light when the auxiliary heater is enabled when the outside temperature is above the set point temperature. Toth teaches a heating control system specifically without outside temperature sensors. Further, Gilkeson does not control the enablement of heaters, while Toth does control the enablement of heaters based on the counter system previously discussed. Thus, there is no motivation to combine Gilkeson and Toth. Further, for sake of argument only, assuming there was motivation to combine Gilkeson and Toth, the combination would still not yield the present invention, as neither reference suggests enabling an auxiliary heater in response to the outside ambient temperature and other criteria as recited in independent claims 1, 11 and 24. Therefore, the Examiner's proposed combination of Gilkeson and Toth teaches away from the present invention.

Furthermore, "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art suggests the desirability of the combination." See Manual of Patent Examining Procedure, 8th Edition (MPEP), Section 2143.01.

The Examiner is reminded that "[i]f the proposed modification or combination of the prior art would change the principle or operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." See MPEP, Section 2143.01.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

See Manual of Patent Examining Procedure, 8th Edition (MPEP), Section 2143.03. The addition of outside temperature sensors is directly contrary to the central teaching of Toth, and would clearly render Toth's approach unsatisfactory for its intended purpose and change its principle of operation. Therefore, Toth is not a proper section 103 reference to support the Examiner's argument. Additionally, as provided in the MPEP citation above, the Examiner has

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only cited dependent claims in his sec. 103 rejection, which by definition, are nonobvious, since no independent claims are cited.

As stated previously, there is no motivation to combine Gilkeson and Toth, since Gilkeson merely teaches a malfunction warning and not heater enablement, and even if there were such motivation, the combination does not yield the present invention. Therefore, the Examiner is applying impermissible hindsight reasoning in an attempt to obtain the present invention.

Therefore, in view of the above, dependent claims 2, 4, 5, 12, 14, 15, 25, 27 and 28 are believed to be distinguishable from Gilkeson and/or Toth and therefore are not anticipated nor rendered obvious by Gilkeson and/or Toth. In addition, claims 2, 4, 5, 12, 14, 15, 25, 27 and 28 recite further limitations that distinguish over the applied art. In conclusion, it is respectfully submitted that claims 2, 4, 5, 12, 14, 15, 25, 27 and 28 are not anticipated nor rendered obvious by Gilkeson and/or Toth and are therefore allowable.

Rejection under 35 U.S.C. 112

The Examiner rejected claims 9, 10, 22, 23, 33 and 34 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, due to rejections under 35 U.S.C. 112, second paragraph. The Examiner also rejected claims 4, 5, 8-10, 14, 15, 20-23, 27, 28 and 31-34 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter applicant regards as the invention.

The Examiner stated

Claim 4 recites the limitation "the predetermined time" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites the limitation "the predetermined time" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitation "the predetermined time" in line 4 and "the predetermined indoor temperature" in line 5. There is insufficient antecedent basis for these limitations in the claim.

Claim 9 recites the limitation "the predetermined time" in line 5 and "the predetermined indoor temperature" in line 6. There is insufficient antecedent basis for these limitations in the claim.

Claim 10 depends from claim 9 and incorporates the same deficiency.

Claim 14 recites the limitation "the predetermined time" in line 1. There is insufficient

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antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "the predetermined time" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitation "the predetermined time" in line 4 and "the second predetermined temperature" in line 5. There is insufficient antecedent basis for these limitations in the claim.

Claim 21 depends from claim 20 and incorporates the same deficiency.

Claim 22 recites the limitation "the predetermined time" in line 4 and "the second predetermined temperature" in line 5. There is insufficient antecedent basis for these limitations in the claim.

Claim 23 depends from claim 22 and incorporates the same deficiency.

Furthermore, it is unclear what is actually being claimed in claims 22 and 23. It is unclear what steps take place "unless the ambient outside temperature is greater than a third predetermined temperature", which is "greater than a value that can damage the interior space".

Claim 27 recites the limitation "the predetermined time" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 28 recites the limitation "the predetermined time" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 31 recites the limitation "the predetermined time" in line 4 and "the second predetermined temperature" in line 5. There is insufficient antecedent basis for these limitations in the claim.

Claim 32 depends from claim 31 and incorporates the same deficiency.

Claim 33 recites the limitation "the predetermined time" in line 4 and "the second predetermined temperature" in line 5. There is insufficient antecedent basis for these limitations in the claim.

Claim 34 depends from claim 33 and incorporates the same deficiency.

Furthermore, it is unclear what is actually being claimed in claims 33 and 34. It is unclear what steps take place "unless the ambient outside temperature is greater than a third predetermined temperature", which is "greater than a value that can damage the interior space".

Applicant respectfully traverses the rejection of claims 9, 10, 22, 23, 33 and 34 under 35 U.S.C. 112, first paragraph, and claims 4, 5, 8-10, 14, 15, 20-23, 27, 28 and 31-34 under 35 U.S.C. 112, second paragraph.

In response thereto, Applicant has amended claims 4, 5, 8-9, 14, 15, 20, 22-23, 27, 28, 31 and 33 in a manner that is believed to overcome the Examiner's rejection. Claims 10, 21, 23, 32

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and 34 do not appear to have deficiencies as stated by the Examiner. As to the Examiner's position that it is unclear in claims 22 and 23 and 33 and 34 what steps take place "'unless the ambient outside temperature is greater than a third predetermined temperature", which is 'greater than a value that can damage the interior space,'" Applicant has amended both claims 22 and 33 in a manner that is believed to overcome the Examiner's rejection.

Therefore, in view of the above, Applicant submits that claims 9, 10, 22, 23, 33 and 34 under 35 U.S.C. 112, first paragraph and comply with the written description requirement, and claims 4, 5, 8-10, 14, 15, 20-23, 27, 28 and 31-34 are not indefinite and comply with the provisions of 35 U.S.C. 112, second paragraph, and therefore are allowable.

CONCLUSION

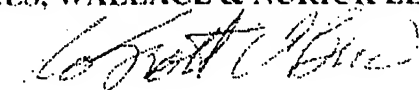
In view of the above, Applicants respectfully request reconsideration of the Application and withdrawal of the outstanding objections and rejections. As a result of the remarks presented herein, Applicants respectfully submit that claims 1-34 are not anticipated by nor rendered obvious by Gilkeson and Toth or their combination and thus, are in condition for allowance. As the claims are not rendered obvious in view of the applied art, Applicants request allowance of claims 1-34 in a timely manner. If the Examiner believes that prosecution of this Application could be expedited by a telephone conference, the Examiner is encouraged to contact the Applicants.

The Commissioner is hereby authorized to charge any additional fees and credit any overpayments to Deposit Account No. 50-1059.

Respectfully submitted,

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